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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,180	08/27/2001	Hideyuki Harada	P/1071-1440	7067

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06/13/2003

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EXAMINER

MAYES, MELVIN C

ART UNIT

PAPER NUMBER

1734

6

DATE MAILED: 06/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,180

Applicant(s)

HARADA ET AL.

Examiner

Melvin Curtis Mayes

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Objections

(1)

Claim 1 is objected to because of the following informalities: it should read “wherein said sintered plate of fired first ceramic functional material is arranged so as to extend along a primary face of a green layer for the substrate. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(2)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(3)

Claims 1, 9, 10, 14, 16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikeska et al. 5,254,191

Mikeska et al. disclose a method for reducing shrinkage during firing of a ceramic body comprising: printing unfired dielectric tape layers, comprising glass inorganic binder, with conductors; stacking the layers on a rigid prefired ceramic substrate of AlN and applying an unsinterable constraining layer on the surface of the stack; and firing at a peak temperature of 800-950°C; and removing the constraining layer (col. 8-14).

By stacking the unsintered (green) tape layers on a rigid prefired AlN ceramic substrate, a sintered plate of fired first ceramic functional material is arranged so as to extend along a primary face of a green layer for the substrate.

(4)

Claims 1-7, 9-12, 14, 16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kodama et al. 5,277,723.

Kodama et al. disclose a method of producing a multilayer ceramic body comprising: making a multilayer ceramic capacitor by layering and firing electrode printed and via-wired green sheets of barium titanate; printing green sheets of borosilicate glass and alumina filler with via wirings and surface wirings; in some of the green sheets, punching holes larger than the made capacitor; layering green sheets and the capacitor so that the capacitor is positioned inside the laminate and the electrodes and via-wiring of the capacitor are connected to the wirings of the green sheets; sandwiching the laminate between dimensionally stable, constraining-force-applying alumina porous plates; firing at 900°C; and removing the porous plates. The green sheets comprise 75 vol% borosilicate glass powder. Kodama et al. further disclose that the fired built-in structure can be a functional parts such as a capacitor or contain many small parts such as chip capacitors, resistors and coils (col. 7, lines 26-58, col. 13, lines 50-68, col. 27, line 28 – col. 28, line 51).

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Claim Rejections - 35 USC § 103

(5)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

(6)

Claims 8, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. in view of Nomura et al. 5,335,139.

Kodama et al. disclose that the green sheets comprise 75 vol% borosilicate glass powder and 25 vol% alumina powder filler. Kodama et al. does not disclose that the multilayer ceramic capacitor has a thickness of 100 μm or less.

Nomura et al. teach that in making a multilayer ceramic chip capacitor, each dielectric layer preferable has a thickness up to about 50 μm , especially up to about 20 μm and lower thickness limit of about 0.5 μm , preferably about 2 μm , and the number of dielectric layers stacked is generally from 2 to about 300, preferably from 2 to about 200 (col. 6, lines 26-34).

It would have been obvious to one of ordinary skill in the art to have provided the multilayer ceramic capacitor in the multilayer ceramic body of Kodama et al. of a thickness of 100 μm or less, as Nomura et al. teach that in making a ceramic chip capacitor, the number of stacked dielectric layers is preferably from 2 to 200 and the thickness of the dielectric layers is preferably about 2 μm up to about 20 μm . By making the capacitor by laminating green sheets (dielectric layers) of number and thickness within the preferred ranges as suggested by Nomura et al., a capacitor (sintered plate) of thickness which encompasses the thickness range of 100 μm or less, as claimed, is provided.

Conclusion

(7)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

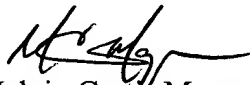
The references disclose methods of making multilayer ceramic substrates containing capacitors.

(8)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 703-308-1977. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM
June 12, 2003